Environmental Management Advisory Board to the U.S. Department of Energy Public Meeting Minutes James E. Forrestal Building - Washington, D.C. April 17-18, 2001

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MEETING PARTICIPANTS

Board Members Present:
Dr. David Adelman, Natural Resources Defense Council
Dr. John Ahearne, Sigma Xi and Duke University
Dr. Lynn Anspaugh, University of Utah
Mr. Dennis Bechtel, Clark County Nevada
Mr. Joel Bennett, Parsons Brinckerhoff, Inc. (EMAB Co-Chair)
Dr. Edgar Berkey, Concurrent Technologies Corporation
Dr. David Bodde, University of Missouri-Kansas City (EMAB Co-Chair)
Ms. Linda Christenson, ICFA
Hon. Richard Church, Mayor, Miamisburg, Ohio
Ms. Kathryn Crandall, Alliance for Nuclear Accountability
Mr. Stanley Genega, Stone and Webster
Mr. Craig Hooks, U.S. EPA
Mr. Ken Korkia, Rocky Flats Citizens Advisory Board
Mr. Ron Kucera, Missouri Department of Natural Resources
Dr. Jeanne Logsdon, University of New Mexico
Mr. Todd Martin, Consultant
Hon. Linda Milam, Mayor, Idaho Falls, Idaho
Dr. Frank Parker, Vanderbilt University
Dr. Glenn Paulson, Paulson and Cooper, Inc.
Dr. Paul Rambaut, Consultant
Mr. Ron Ross, Western Governors' Association
Dr. Lorene Sigal, Oak Ridge Reservation EM Site Specific Advisory Board
Mr. David Swindle, EG&G
Mr. Tom Winston, Ohio Environmental Protection Agency
Mr. Jim Woolford, U.S. Environmental Protection Agency
Ms. Diana Yupe, Shoshone Bannock Tribes

Board Members Not Present:
Mr. John Applegate, Indiana University College of Law
Ms. Agnes Dover, Hogan and Hartson, L.L.P.
Mr. Russell Jim, Yakama Indian Nation
Mr. John Moran, Consultant
Ms. Kate Probst, Resources for the Future

Board Consultants Present:
Mr. Richard Begley, Consultant
Mr. Michael Mastracci, Techmatics
Ms. Jean Shorett, Department of the Army

Department of Energy Participants:
Mr. Michael Barainca, Office of Science and Technology (EM-50)
Ms. Helen Belencan, Office of Technical Program Integration (EM-22)
Mr. Eli Bronstein, Director, Office of Budget (EM-12)
Mr. Gerald Boyd, Deputy Assistant Secretary, Office of Science and Technology (EM-50)
Ms. Patrice Bubar, Associate Deputy Assistant Secretary, Office of Integration and Disposition (EM-20)
Mr. Richard Burrow, Deputy Director, Secretary of Energy's Advisory Board (SEAB)
Mr. Fred Butterfield, Office of Policy, Planning and Budget (EM-10)
Dr. Ker-Chi Chang, Office of Basic and Applied Research (EM-52)
Ms. Martha Crosland, Director, Office of Intergovernmental & Public Accountability (EM-11)
Mr. James Fiore, Deputy Assistant Secretary, Office of Site Closure (EM-30)
Mr. Marvin Garcia, Director, Office of Project Management (EM-6)
Ms. Greta Gard, Office of Long-Term Stewardship (EM-51)
Mr. Mark Gilbertson, Director, Office of Basic and Applied Research (EM-52)
Mr. Arnold Gritzke, Office of Basic and Applied Research (EM-51)
Mr. James Herzog, Department Manager for INEEL Integration and Technology Utilization
Ms. Elizabeth Hocking, Argonne National Laboratory
Dr. Carolyn Huntoon, Assistant Secretary, Office of Environmental Management (EM-1)
Dr. Paul Kearns, Assistant Laboratory Director, INEEL
Mr. Matthew Koch, Office of Congressional and Intergovernmental Affairs (CI)
Mr. John Lankford, Director, Office of Technology Development and Demonstration (EM-53)
Mr. Bill Levitan, Office of the Deputy Assistant Secretary for Project Completion (EM-40)
Mr. James Melillo, Executive Director, EMAB (EM-10)
Dr. Linda McCoy, Idaho Operations Office
Mr. Chet Miller, Office of Basic and Applied Research (EM-51)
Ms. Beth Moore, Office of Basic and Applied Research (EM-52)
Ms. Kris Morris, Office of Safety, Health and Security (EM-5)
Ms. Tracy Mustin, Director, Office of Transportation (EM-24)
Mr. Michael Oldham, Director of Site Operations, COO (EM-3)
Mr. James Owendoff, Principal Deputy Assistant Secretary, Office of Environmental Management (EM-2)
Mr. Ed Rizkalla, Office of Basic and Applied Research (EM-51)
Mr. Gene Schmitt, Acting Deputy Assistant Secretary, Office of Policy, Planning, and Budget (EM-10)
Mr. Greg Sullivan, Office of Long-Term Stewardship (EM-51)
Mr. Jeffrey Walker, Director, Office of Technology Application (EM-54)
Mr. Michael Weis, Office of Project Completion (EM-40)
Mr. Matthew Zenkovich, Office of Planning and Analysis (EM-13)

Other Participants:
Mr. Robert Barbel, ATL International
Mr. Jim Bridgeman, ANA
Dr. Kevin Crowley, National Research Council
M. Griben, UNITEC
Mr. Stephen Langel, Inside Washington
Mr. Irving Leichter, UNITEC
Mr. David Levenstein, U.S. EPA
Mr. Shawn Terry, Inside Energy
Mr. Eric Weiser, BPI

EMAB Support Team:
Ms. Peggie Burke, Coleman Research Corporation
Ms. Regina Creighton-Bey, Coleman Research Corporation

Mr. Greg Evans, Coleman Research Corporation
Ms. Michelle Lynar, Coleman Research Corporation
Mr. Michael Pfister, Coleman Research Corporation
Mr. Kenneth Smith, Coleman Research Corporation
Ms. Kimberly Stewart, Coleman Research Corporation

LIST OF ACRONYMS

ATIC	Alternative Technologies to Incineration Committee	EQ	Environmental Quality
ASTD	Accelerated Site Technology Deployment	ER& WM	Environmental restoration and Waste Management
C&M	Contracting & Management (Committee)	FY	Fiscal Year
CAP	Capital Assets Project (List)	GDP	Gaseous Diffusion Plant
CFR	Code of Federal Regulations	GJO	Grand Junction Office
CWID	Complex-Wide Integration and Disposition	GPRA	Government Performance Results Act
D&D	Decontamination & Decommissioning	HQ	Headquarters
DAS	Deputy Assistant Secretary	ID	Idaho Operations Office
DOE	Department of Energy	INEEL	Idaho National Engineering and Environmental Laboratory
DWP	Detailed Work Plan	IPAB	Integrated Planning, Accountability, and Budgeting (System)
EH	Office of Environment, Safety and Health	ISM	Integrated Safety Management
EM	Office of Environmental Management	ISMS	Integrated Safety Management System
EM-1	Assistant Secretary, Office of Environmental Management	I&T	Integration & Transportation
EM-3	Director of Site Operations	LTS	Long-Term Stewardship
EM-5	Office of Safety, Health & Security	MLLW	Mixed Low-Level Waste
EM-6	Office of Project Management	NAS	National Academy of Sciences
EM-10	Office of Policy, Planning and Budget	NASA	National Aeronautics Space Administration
EM-11	Office of Intergovernmental Affairs	NE	Office of Nuclear Energy
EM-20	Office of Integration and Disposition	NRC	National Research Council
EM-30	Office of Site Closure	OECM	Office of Engineering and

			Construction Management
EM-40	Office of Project Completion	OST	Office of Science and Technology
EM-50	Office of Science and Technology	PC-1	Office of Contract Reform and Privatization
EM-51	Office of Long-Term Stewardship	PEIS	Programmatic Environmental Impact Statement
EM-52	Office of Basic and Applied Research	PMCDP	Project Management Career Development Program
EM-53	Office of Technology Development and Demonstration	PMI	Project Management Initiative
EMAB	Environmental Management Advisory Board	PM/LI	Performance Measures / Leading Indicators
EMSP	Environmental Management Science Program	R&D	Research and Development
EPA	Environmental Protection Agency	RDD&D	Research, Development, Demonstration and Deployment
RW	Office of Civilian Radioactive Waste Management	TD	Technology Development
S&H	Safety and Health	TD&T	Technology Development & Transfer (Committee)
S&T	Science and Technology	TRU	Transuranic Waste
SEAB	Secretary of Energy Advisory Board	TTP	Technical Task Plan
SC-1	Director, Office of Science	WH&S	Worker Health and Safety (Committee)
SNF	Spent Nuclear Fuel	WIPP	Waste Isolation Pilot Plant
SRS	Savannah River Site		

April 17, 2001

Opening Remarks

Mr. Joel Bennett, Co-Chair of the Environmental Management Advisory Board (EMAB), called the meeting to order at 1:00 p.m. He introduced two consultants to the Board who provided presentations later in the day - Richard Begley, new co-chair for the Alternative Technologies to Incineration Committee (ATIC) and Mike Mastracci, a member of the Ad Hoc Committee on Safety and Health in Technology Development.

Mr. Bennett remarked that a majority of resolutions approved by EMAB in the past, and on the docket for this meeting, affect science and technology programs. He commended Mr. Gerald Boyd, Deputy Assistant Secretary for the Office of Science and Technology (OST), for his candid cooperation and for actively engaging the Board, which exists, as an Office of Environmental Management (EM) resource. He also recognized Mr. Randy Scott, Director for the Office of Safety, Health and Security (EM-5), for his work with the Board.

Mr. Bennett reviewed the meeting agenda (**Attachment A**) and the Board's process for presentation, discussion (Board and public), and subsequent Board votes on committee products.

The Board approved the October 12-13, 2000 meeting minutes with corrections as noted from Dr. Ahearne and Dr. Paulson. [Minutes of EMAB meetings are available on the Internet at **http://www.em.doe.gov/emab/products.html** .]

Mr. Bennett introduced Dr. Carolyn Huntoon, Acting Assistant Secretary for Environmental Management (EM-1).

Remarks by Assistant Secretary Huntoon

Dr. Huntoon thanked the Board members for their service and dedication to EM and to their country. She noted the diverse array of member backgrounds and the quality advice EMAB provides that helps EM shape its programs and policy. She cited an April 2000 recommendation on safety and health in technology development, which contributed to a new policy statement, signed January 2001.

Noting that the Fiscal Year (FY) 2002 budget request was released just a week before this meeting, Dr. Huntoon said that there were specific issues everyone had to deal with. The total EM budget is $5.91 billion compared to $6.26 billion in FY '01. Dr. Huntoon stated that there will be hearings in Congress in the weeks to come and the staff and site managers are working to define what they'll be able to do with the funds allocated to them. She said there have been a lot of plans put in place since last year regarding project management and contracting improvements and even though the FY '02 budget has decreased, EM will still be able to stabilize materials and do a lot of restoration work.

Dr. Huntoon cited some principles that EM used in formulating its budget (e.g., protecting human health, safety and the environment, ensuring nuclear materials are properly managed and that compliance agreements are met). She said that at some sites, traditional restoration work would be deferred until it can be resumed. Secretary Abraham called for a 5-10% increase in efficiency across the Department. When Dr. Huntoon briefed the Secretary on the EM program, they discussed the $270 billion life-cycle cost and he challenged EM to do better and directed a "top-to-bottom assessment of the entire program."

EM has made improvements in project management and Dr. Huntoon stated the Program could always do better. There will be more emphasis on science and technology and long-term needs to help get schedules and costs down. She said the Secretary wrote a letter to Governors of each state where DOE has a site to assure that the Department is doing things that are in compliance and that the framework is designed to do things as efficiently and effectively as possible. Dr. Huntoon noted that in a lot of cases ten years has passed since compliance agreements were signed and that EM knows a lot more now than it did then about problems and solutions to some of those problems.

Dr. Huntoon said the budget puts priority on key projects, keeping with the EM strategy to ensure health and safety and then address "high-risks." The next priority is to keep closure sites on their schedules which have been accelerated in recent years. She said that EM needs to deliver on what it has promised. She also noted some budget priorities:

- the Hanford retrieval Project;
- pre-treatment of waste at Savannah River;
- shipments to the Waste Isolation Pilot Plant (WIPP);
- stabilizing spent nuclear fuel and moving it from wet to dry storage;
- completing cleanup at Weldon Springs;
- sustained focus on long-term stewardship;
- continued funding for development and application of new environmental technologies;
- turnover activities of uranium enrichment plants at Portsmouth and Paducah to keep them safe and in operable condition as well as to provide support for displaced workers; and,
- EM's new responsibility for the design and construction of the depleted uranium hexafluoride plants at Portsmouth and Paducah.

Dr. Huntoon acknowledged that the path ahead is challenging and stated that continued progress in EM will require teamwork among local, state and federal stakeholders.

Dr. John Ahearne asked for clarification of Secretary Abraham's statement calling for a sweeping efficiency assessment of the EM program. Dr. Huntoon stated he asked for a top-to-bottom assessment on not only money but on all approaches. She said that EM has been in business a little over ten years and should look at compliance agreements, shipping schedules and project management, among other areas. She said EM will get started with the assessment and once the nomination for the next EM Assistant Secretary goes to Congress, the assessment should be fully under-way.

Mr. Hooks asked for clarification about Secretary Abraham's letters sent to the Governors and to the Administrator of the Environmental Protection Agency (EPA). Dr. Huntoon responded that the letters ask the states and the EPA regions to look at the compliance framework under which agreements were made particularly since such frameworks vary from state to state. She stated this is a check to see how to do things better and to fix projects were money is not being spent as efficiently as possible.

Mr. Winston noted that Ohio-EPA has made significant advancements to be flexible toward compliance agreements given efficiencies and new technologies. Notwithstanding that, he said Ohio-EPA believes there are significant challenges ahead with the '02 budget which he called a "problem-budget" from a compliance perspective. He said that Ohio-EPA supports contract improvements and stands ready to work with the Department.

Ms. Crandall said she was surprised to see the emphasis on privatization in the budget given problems in recent past. Dr. Huntoon responded that EM has been successful with a number of privatization contracts. She didn't refute that there were overruns with the tanks privatization effort and noted that contract was stopped. There have been some successful privatization contracts and EM is using this contracting approach appropriately where it knows how. Dr. Huntoon stated that she does not believe that privatization deserves to be unilaterally cut and therefore it is in the budget.

Ms. Yupe referenced Secretary Abraham's letters to the Governors and whether there would be work with the tribes of a similar nature. Dr. Huntoon replied that the Secretary's letters referred mostly to compliance issues and were sent to reassure the states that DOE was not going to "walk away from compliance." DOE wants to reexamine its compliance agreements. Dr. Huntoon stated that EM has every intention of working with the tribal nations on issues of interest to the tribes.

Mr. Bennett, on behalf of the EMAB, expressed appreciation for the quality time and effort that Assistant Secretary Huntoon gave to her job and to the Board.

Ad Hoc Committee on Science and Innovation

Dr. Ahearne, Chair of the Ad Hoc Committee on Science and Innovation, stated the Committee was charged by the EMAB to explore the role of science within the context of the EM program and the broader DOE issues pertaining to funding for the scientific research that impact the EM program. He said the review was relatively short and in essence a snapshot relative in time to when the review took place.

Dr. Ahearne reviewed Committee membership and qualifications. He explained that the Committee focused primarily on the EM Science Program (EMSP) because the Committee believes that there are opportunities for "paradigm-shifting breakthroughs to reduce/avoid environmental and occupational risks, and/or cleanup costs/schedules in non-EMSP science and technology (S&T) activities are necessarily limited." The Committee held four meetings, including one at Richland, Washington and one at the Savannah River Site. Due to time constraints, the Committee was not able to go to other sites.

Dr. Ahearne stated the goal was to present an interim report at the October 2000 EMAB meeting at which he presented the Committee's draft findings, conclusions, and recommendations. Since that October Board meeting, the Committee worked through multiple drafts of its report. He said the report before the Board titled, *"The Role and Status of Basic Science in Accomplishing the DOE-EM Mission,"* is final and represents a consensus view of the Committee.

Dr. Ahearne reviewed the Committee's primary conclusions:

- The EMSP has harnessed some of the best scientists in the United States to work on solutions to the nation's environmental contamination legacy.
- The EMSP is an effective means of maintaining the core competency of research organizations.
- The EMSP has achieved many of the expectations of those who conceived it, including closer interaction with OST Focus Areas.
- The application of science results requires the attention of all branches of EM.
- The entire EM-related science research enterprise must flow from a shared and compelling strategic view of program objectives and benefits by DOE leadership to emphasize proactively the priority, value, and role of science in solving major EM problems.

Dr. Ahearne then reviewed the Committee's recommendations:

- The Assistant Secretary for Environmental Management (EM-1) and the Assistant Secretary for the office of Science (SC-1) should provide top-down demonstrable support for their science programs. They should champion proactively such programs with other key decision-makers in the Department of Energy, as well as in Congress and the Office of Management and Budget.

- EM-1 should ensure that all EM Deputy Assistant Secretaries become proactive in ensuring the science developed in OST gets applied in EM.

- EM-1 and SC-1 should convene a working group to develop a strategic plan for an EM science program that will articulate both internally and externally:

  - why investments in basic science are important,
  - what an EM science program is expected to accomplish,
  - what incentives can be developed so that these expectations can be met, and
  - how promising bench-scale research can be transferred to field-scale tests/application.

- The leadership of DOE and EM-1 should request adequate, stable and predictable funding and should not depend on Congress to initiate budgetary increases.

  - The National Research Council, in a 1997 report, calculated that an adequate EMSP budget that would support an adequate number of new and continuing projects, and would attract and retain outstanding scientific talent, should be $112 million per year.

- The Deputy Assistant Secretary for OST should establish requirements for DOE employee positions in the EMSP that reflect their scientific and technical nature and should refine operational procedures for the EMSP.

  - Requirements should include responsibility and accountability for validating science needs, acting as liaison between end-users and researchers, and identifying and distilling science results.
  - Operational procedures should ensure that Focus Area personnel and other site users are involved, not only in the development of calls for proposals, but as advisors in the merit review of such proposals.

- The leadership of DOE and EM-1 should seek additional funds to bridge the "valley of death" (i.e., the process by which the most promising projects are carried from bench-scale research to field-scale testing and implementation).

- The Deputy Assistant Secretary for OST should require that flexible roadmaps be developed which identify the paths to be pursued to clean-up while accommodating

credible alternative clean-up technology options that may become available (particularly in high-risk situations).

- EM-1 should mandate that EMSP grants be clearly differentiated between "core science" and "problem-driven science," particularly with regard to the criteria by which each is judged to be successful.

  - The criteria should recognize clearly that EMSP is most likely to contribute to intermediate or long-term clean-up processes, into which the incorporation of new technology is most practicable.

- *Once the Program is stabilized with significantly higher funding,* the Deputy Assistant Secretary for OST should begin the process of broadening its research approach beyond the current grant model.

  - A portion of DOE grants then should support teams of investigators working together directly with end-users.
  - Grants should be awarded competitively to university or national laboratory investigators who lead multi-organizational teams in developing and applying research to identified problem areas.

Dr. Ahearne concluded his presentation with the Committee's overall conclusion for the review of the role and status of science in accomplishing the DOE-EM mission. He said that the application of science is needed to address the very tough problems that must be solved to meet the challenges of the EM mission. The EMSP has begun to meet that need although the Committee believes that the program does have areas in need of improvement. Overall, albeit that the EMSP is a young program, it has been a plus for EM and well-deserves continued support.

Dr. Bodde commented that the approach of using the ad hoc committee model to study issues of concern to EM-1 has repeatedly worked well for EMAB. He asked Dr. Ahearne whether the Committee had specific ideas how to provide funding to bridge the "valley of death" (the applied research and exploratory funding gates of the R&D gates model). Dr. Ahearne replied the Committee did not go into depth on that. However, the Committee was struck by how often the issue was raised in the field. Dr. Bodde tabled the idea of co-investment much like a division of a corporation might do as a venture capital approach to provide such funds.

Dr. Berkey, a member of the Ad Hoc Science and Innovation Committee, said that to some extent OST has begun to address this need by putting money into the middle part of the regime (i.e., research comes from the bench-scale stage up through co-funding with the sites). Dr. Berkey noted, however, that there is still a lot of research coming forth that may be lost.

Mr. Swindle, also a member of the Ad Hoc Committee, stated the Committee briefly examined the R&D programs of other agencies (e.g., the Department of Defense and National Aeronautics and Space Administration (NASA) and they noted that other agencies model their research on a life-cycle basis. For example, the "6.1 through 6.6" research and

development process is used extensively at the Department of Defense. The model allows for well-recognized opportunities from a Federal funding perspective, to plan for level funding and avoid the "valley of death."

There was discussion about whether funding for the "valley of death" is strictly a fiduciary matter. Dr. Berkey stated that while funding is necessary throughout research, development, demonstration and deployment (RDD&D), the process is multi-faceted and requires mentoring, focus on end-user needs, and broader non-technical administrative and management attention. Mr. Ross asked if EMAB should look at other models for R&D funding such as the biotech industry which seems to be moving forward with private investment at a rapid pace. Dr. Berkey said that in the environmental technology industry the funding issue has not been solved. He said that in a sense the DOE is its own customer but that there is nothing magic about getting through the "valley of death;" it simply requires rigor in life-cycle planning and making sure there is funding to make it through. Mr. Begley added that the DOE budget process makes it difficult to mirror an industrial model that can do a long-term analysis of a business line and make a product value judgement on a technology. He agreed that the life-cycle focus is key to providing incentives to bridge the "valley of death."

Technology Development & Transfer Committee Report

Dr. Berkey, Chair of the Technology Development and Transfer (TD&T) Committee, reported that the OST has been very cooperative in seeking reviews from EMAB and in implementing recommendations from the Board. He stated that there have been 61 recommendations since 1995 by EMAB addressing various elements of the OST program (e.g., performance measurement, work package prioritization, barriers to commercialization, and other elements). OST has also been reviewed by the House Oversight Committee in 1997 and 1999. The House Committee on Commerce released a report in the Fall of 2000 titled, "Incinerating Cash: The DOE's Failure to Develop and Use Innovative Technologies to Clean Up the Nuclear Waste Legacy."

Dr. Berkey said the TD&T Committee offered to conduct an over-arching review of the whole OST system and was then formally asked by Assistant Secretary Huntoon to do so. The Committee formed a working group to address three specific charges:

1. How does the EM science and technology program compare to similar environmental technology Research and development (R&D) program in the Federal government and private industry?
2. How have OST's investments impacted the DOE cleanup mission?
3. Are the current structure and operation of the S&T activities within EM adequate to continue the trend of increased use of S&T in meeting DOE's cleanup goals?

Dr. Berkey noted that the Committee did not intend the response to the second charge to be quantitative in nature, but to focus more on the qualitative impacts, which led to the third charge. He reviewed the working group's methodology. The working group met at DOE headquarters (HQ) in January, at the Savannah River Site in February, and at the Idaho National Environmental and Engineering Laboratory (INEEL) in March. The group went to the Savannah River Site (SRS) because of experience members of the group have with SRS operations (i.e., Mr. Begley and Dr. Spencer) and thus the group's ability to historically see how S&T programs evolved. The group went to INEEL because it is the EM lead laboratory and has taken the leadership role with other core-laboratories in the national laboratory system to address EM problems.

Dr. Berkey reported the group's findings pertaining to the first charge. He said that the EM program contrasts significantly with private programs, which makes it difficult to apply commercial approaches. For example, the presence of radioactive materials is mostly a problem specific to DOE. Also, the EM program is stakeholder driven as opposed to the market-driven/return on investment analyses in the private sector. In OST, there is a prioritization process that is transparent and based on end-user needs and it is vetted with those users who depend on the R&D coming out of the program.

Dr. Berkey stated that given the many unique and differentiating aspects of the OST program, it is difficult to compare it to other R&D programs. The working group concluded that the EM S&T program:

- is the largest program in spurring environmental technology developments;
- has worked best where the R&D program is integrated with Field operations; and
- is unlikely to reach its potential unless it is operated in an integrated and coordinated manner with the rest of the EM operations.

Regarding the second charge, Dr. Berkey reported that the Group found that OST investments are linked and prioritized to support the EM cleanup mission as never before. He cited several distinct impacts to support this finding. He said there is a dramatic increase in the number of technology deployments aimed at cleanup. There are more examples of significant cost savings / cost avoidances from the use of new technology. In addition, many new and recently developed site-based efforts are leading to more application of technology-based solutions (e.g., the Accelerated Site Technology Deployment (ASTD) program, deployment assistance teams, and site teams) which have linked the site to the OST organization to facilitate site-based solutions. These links have resulted in developing OST technologies for increased worker health and safety (e.g., personal cooling system).

The working group concluded there are a number of examples of OST investments that are increasingly contributing to the EM cleanup mission by reducing costs, schedule, and risks to workers and the public and by providing solutions to problems that could not be solved before. Dr. Berkey stated that the group believes that OST needs to promote and support these linkages more, but that the Committee is encouraged "for the moment." Two other conclusions about the impact of OST investments are that they have encouraged co-funding with the end-users, and investments are increasingly being seen as supporting EM "corporate" purposes. This has resulted in a positive attitude about OST across EM.

Regarding the third charge, Dr. Berkey reported the Group found the current OST program has evolved, in part, because Mr. Boyd has accepted and implemented a large number of recommendations concerning his program. The program has evolved into a coherent management system and process, which is codified in the September 2000 update of the OST Management Plan. Dr. Berkey stated that the Committee concluded that OST has implemented programs that are demonstrating numerous direct benefits toward meeting DOE's cleanup goals. For example, the EM focus areas, the EMSP, the ASTD, the Environmental Quality (EQ) R&D Portfolio, deployment assistance teams, and others. The group also found that OST has established better linkages with the rest of EM, within HQ and with the field (especially at sites that are more receptive to the use of new technologies).

Dr. Berkey stated the Committee concluded that the OST program has begun to function as a corporate EM program and the current structure and operations provide a sound basis

for continuing the trend of increased use of S&T in meeting DOE's cleanup goals. The Committee also concluded that continued attention to all aspects of the OST program is required.

Dr. Berkey reviewed the Committee's recommendations:

- DOE-EM should expand the use of contract incentives to encourage the use of new technologies, as a way to solve problems. Dr. Berkey said that while contract reform is taking hold, not all contracts have incentives.

- DOE-EM should implement a complex-wide, consistent, and well thought out communication plan related to the S&T Program that can describe progress, status, and plans to keep Congress and the sites informed and to demonstrate the increasing use and value of S&T.

- DOE-EM should make greater use of complex-wide integration and disposition (CWID) tools to identify technology needs and waste integration opportunities. Dr. Berkey said that CWID could also be used to identify greater efficiencies.

- OST must improve the quality of technology-related data being reported from the Field (i.e., into the Integrated Programming, Accounting and Budget System (IPABS)) as it is critical to the prioritization process for allocating funds, as well as to EM credibility.

- OST should define and use a rational and defensible life cycle cost-savings reporting system, including cost avoidance.

- OST should develop and implement more ways to measure progress (preferably a suite of corporate performance measures that promote intended outcomes). Dr. Berkey said that an S&T program is a complicated program that needs a variety of performance measures to encourage people to respond.

- OST should make greater use of the EM Lead Laboratory and Core Laboratories to fill gaps where the Focus Areas are not operating, such as on longer-range strategic issues, waste integration, subsurface science needs, and life-cycle funding gaps.

- OST should continue to pursue the path of continuous improvement it has been on.

Mr. Martin said that in reading through the three resolutions before the Board (from the Ad Hoc Committee on Science and Innovation, the Science Committee and the TD&T Committee), there are obvious linkages in the related reviews. For example, he suggested that given there have been 61 recommendations in the past five years alone on S&T programs, perhaps the resolutions should have an integrated message to the big picture of what this Board believes a truly effective S&T program should look like. Mr. Bennett responded that this is sometimes difficult given the nature and perspective of the various tasks the committees work with. Dr. Parker noted that there is a slightly different focus of the three reports, but that the cross-matrix fashion of committee memberships allows the different committees and working groups to reinforce each other's studies. Dr. Berkey noted that the Board could look into working to integrate common themes of past recommendations. He said they could be articulated for the benefit of those on the Board who do not have as much experience with EM. The Board agreed this would be useful.

Science Committee Report

Dr. Parker, Chair of the Science Committee, reported on the status of the Committee and some interim findings based on the Committee's initial review of the quality of science stemming from the EM Science Program. Dr. Parker noted that it is important to recognize the Environmental management Science Program (EMSP) is a very small program ($32 million last year compared to $177 million for Focus Areas and $6 billion for EM overall). He also said that the Committee was encouraged to see that reductions in the budget did not target specific programs but were relatively fair across the board.

Dr. Parker explained that at the time the Committee began its review, just 16 final reports were available out of 30 grants awarded in 1996 in the two EM problem areas the Committee was asked to review. The two areas, High-Level Waste and Decontamination and Decommissioning, were among six areas that were funded in the first year of the EMSP as part of the Program's kick-off approach to issue grants that pertained to a broad area of scientific discipline and EM challenges. The Committee judged the general quality of the projects against criteria taken from EMSP guidance, the National Institutes of Health and the National Science Foundation. The Committee considered:

- the intellectual merit of the activity;
- the originality of the project;
- the importance of the project in advancing knowledge and understanding; and
- whether the project increased the number of potential researchers for DOE problems.

Dr. Parker stated that the Committee met once in Washington, DC, and heard from Mr. Boyd and his Director for the Office of Basic and Applied Research, Mr. Mark Gilberston, as well as from the Deputy Assistant Secretaries of the other EM program offices or their representatives. Dr. Parker said the Committee was "delighted" to hear evidence of the beginning of shared responsibilities for the promotion and integration of S&T among the EM program offices (EM-20, Integration and Disposition; EM-30, Site Closure; and EM-40, Project Completion). He added that some EMSP project research results are outstanding and already contributing to the solution of EM problems and that some studies would not have been done without a program like the EMSP.

With regard to the quality of EMSP projects, Dr. Parker reported that the Committee believes that some conclusions were evident enough to offer at this stage. He said the Committee found many project reports were late, many did not follow submittal guidance, and a majority over-emphasize publications as *the* measure of success. In addition, the Committee found that despite the commitment from EM-1 and the Deputy Assistant Secretaries (DASs), support for basic science does not flow throughout the organization. He noted further that the field is not committed to basic R&D. Dr. Parker also stated even though he believes there is little that can be done about it, it bears repeating that the "declining budget is impacting the effectiveness of the Program."

Dr. Parker reviewed the three Committee recommendations.

- OST should explore stronger interim quality assurance measures for EMSP projects

to leverage better final reports and to get them on time.

- OST should ensure that EMSP principal investigators document in project final reports the importance of the basic science research results stemming from the project and their potential methods for utilization.

- OST should ensure that EMSP reports are easily available and disseminated *in a form* that will be readily utilized by DOE and contractor managers.

There were no questions for Dr. Parker.

Mr. Boyd thanked the three Committees for their work. He stated that OST recognizes there is much to be done but that he is proud of the progress to integrate S&T made to date under Dr. Huntoon's leadership. He noted the constraints of the budget reductions and the marginal relief, if any, that may occur in future years. Given these constraints, he pointed out that it might take a bit longer to implement some of the improvements based on recommendations EM gets, but that he appreciates the advice from the Board.

Long-Term Stewardship Committee Report

Mr. Winston provided a status report on the Long-Term Stewardship (LTS) Committee. His Co-Chair, Mr. Applegate, wasn't able to make it to the meeting. Mr. Winston stated the Committee is creating three sub-committees to align with developments that have been taking place within EM's Office of Long-Term Stewardship (EM-51). He noted that the Committee wished to recognize Dr. Huntoon for the attention she gave to LTS and for putting the EM-51 "on the map." He reported that Mr. Geiser was appointed as acting Director for EM-51 and remarked that Mr. Geiser is well positioned and fully capable to take LTS to the implementation phase.

Mr. Winston explained that the LTS program is managed as a partnership between Headquarters, DOE Idaho Operations Office (ID) and the Grand Junction Office (GJO). Headquarters works on policy, planning, and inter-governmental coordination. Idaho works on program integration and implementation, as well as science and technology development. The GJO has long-term surveillance and maintenance program execution, which involves sixty-four sites. He said the EM-51 mission includes a large set of activities:

- oversight management of thirty plus sites currently in LTS (there are additional sites and portions of sites that are in LTS, but they currently report to DOE Field Offices);

- preparation of guidance for the Field Offices for development of site-specific LTS plans;

- completion of Department-wide LTS Strategic Plan;

- completion of an initial science and technology roadmap for LTS;

- completion of a National LTS Study in response to the Program Environmental Impact Statement (PEIS) lawsuit Settlement Agreement;

- making the Central Internet Database fully operational;

- providing technical assistance and funding through a pilot-project approach to move from issue identification to problem resolution;

- developing and overseeing the implementation of performance assessment and verification tools for ensuring stewardship requirements are met;

- developing and overseeing the implementation of an LTS training program;

- developing and implementing policies and procedures for the transfer of sites into LTS; and,

- evaluating the potential environmental liability of non-federal sites regulated by the Nuclear Regulatory Commission.

Mr. Winston explained that the Committee work plan includes providing feedback to EM-51 on the strategic plan and site plan guidance. He noted that EM-51 is organizing itself in conjunction with the joint operations with DOE-Idaho and Grand Junction. Mr. Winston explained the three new subcommittees being formed:

1. Subcommittee on Non-DOE Sites
2. Subcommittee on Enhancing LTS Through Contracts
3. Subcommittee on Intra-Department Site Transfer.

The Non-DOE Sites Subcommittee will help with the larger universe of sites that could potentially be involved with DOE LTS. They include sites that, per the National Waste Policy Act Section 151(b), list potential assumption of LTS responsibility by DOE for commercial fuel facilities where some low-level waste remains following closure. Mr. Winston said the task for EM is how it should prepare for, and become involved in, the non-DOE sites for which it may become responsible.

Mr. Winston said the Enhancing LTS Through Contracts Subcommittee has members from the EMAB Contracting and Management Committee. He said the role is to decide what is needed to manage LTS after cleanup, how that gets factored into contracts and how contract language should address both known and unknown areas of LTS responsibilities in the Department.

The third subcommittee pertains to intra-Department site transfer in accordance with a December 15, 2000 memorandum signed by Dr. Glauthier that states where cleanup is complete and no other program office has a presence, EM will continue to be responsible for providing LTS. The memorandum also says that for sites where there is an on-going non-EM mission, such as scientific research or a weapons stockpile, the site landlord programs will take responsibility for LTS activities after EM finishes cleanup. Mr. Winston explained that most sites will be transferred back to the landlord and that two sites, one from Defense Programs and one from the Office of Science, are expected to transfer LTS responsibilities from EM this year as "models." He said the task at hand for this subcommittee is how to help EM define how to manage the challenges associated with site transfer and separation of LTS responsibilities within the Department.

Mr. Winston added that there are other LTS issues for another time; for example, the question of how DOE ensures a consistent LTS approach since some LTS responsibilities will fall to EM and some to other DOE offices. Mr. Winston concluded that the Committee doesn't want to get away from the big picture issues it has been helping with but that the Committee members are looking forward to working some of the more specific issues.

Ad Hoc Committee on Safety and Health in Technology Development

Mr. John Moran, Chair of the Ad Hoc Committee on Safety and Health in Technology Development, participated via tele-conference while Mr. Mastracci (Committee member) provided a status briefing on Committee activities. Mr. Mastracci said the Ad Hoc Committee is following through to help address issues that may arise as EM moves forward in implementing recommendations provided to EM a year earlier on safety and health (S&H) considerations for the technology development (TD) process.

Mr. Lankford, Director of the Office of Technology Development and Demonstration (EM-53), provided an overview of the establishment of a policy and progress to date related to this effort. Mr. Lankford expressed his appreciation for the opportunity to address the EMAB on what he believes is an important issue especially in light of a recent accident that occurred during a technology demonstration at Portsmouth. He said there are many organizations responding to, and participating in, the safety and health needs in technology development including the partnership with EM-5 resulting from the EMAB's recommendations.

Mr. Lankford stated that developers were part of the problem that contributed to the Portsmouth accident. He said they failed to analyze the hazards and implement controls, they did not establish clear roles, and did not establish or ensure a safety culture that implements Integrated Safety Management (ISM). As Dr. Huntoon noted earlier, EM has a new policy on S&H in TD. The policy states that OST has responsibility for safety in the development and *in the use* of new technologies. He said the policy minimizes bureaucracy (i.e., there will not be an oversight layer, rather the policy allows for practical assistance to the developer to make a technology safer). In addition, the new policy allows worker involvement from the beginning of design.

Mr. Lankford said that EM-53 is executing an action plan but the culture is only beginning to change. The sites, developers and focus areas each have significant roles to play and they each support the new policy. He said success requires implementation by the focus areas, developers and field organizations and that the EMAB's continued input is essential.

Since there was some confusion about the role of the new S&H in TD policy, Dr. Berkey asked Mr. Lankford to explain how the new policy augments the principles of ISM already instituted in the technology development process. Mr. Lankford stated that many sites are already in compliance with the new policy and that it is a logical responsibility for the OST organization to bring the policy into the processes of the ISM system. Dr. Berkey suggested that Mr. Lankford reinforce the view that the ISM system is already in place and working and that the new policy is consistent with ISM.

Mr. Moran commended OST and EM-53 for everything they have done in getting the new policy written and issued. He said that it goes far beyond what any other agency has done in S&H policy development concerning TD. He added that the fundamental starting point in the development of technology safety data sheets (as described in the new policy) is the conduct of a job hazard analysis and this is done with worker participation, which is a key integrating link to an effective ISM system. Regarding the Portsmouth incident, he said one of the paths forward is development of more clearly defined S&H responsibility aspects in the contracting process. He concluded by saying that the Ad Hoc Committee (with the Contracting and Management Committee) will be looking further into this contracting issue as it evolves.

Dr. Parker asked about policies for contractor zero-tolerance for accidents. Mr. Lankford stated he was not familiar enough with specifics of such policies to comment. Mr. Swindle stated that there are contract administration issues in the Portsmouth case because the accident did not involve the management and integration contractor but occurred during a demonstration as required by a TD contract. He said there are clauses, which the C&M and Worker Health and Safety (WH&S) Committee will look into, that cancel an award fee if there is a serious accident or fatality and that such issues and contract clauses have implications beyond EM-50 and EM-5.

Contracting and Management Committee Report

Mr. David Swindle, Chair of the Contracting and Management Committee (C&M), gave an activities progress and status report. He cited the importance of contract reform, explaining that DOE spends over ninety percent of its entire budget through contracting mechanisms to perform its work. He said that the Committee is currently working on activities in:

- Project Management;
- A DOE Contractor Base Study; and
- Workers' Compensation.

The Committee is also planning work (as mentioned in the Ad Hoc Committee on S&H in TD presentation) with the WH&S Committee, and with the LTS Committee on managing long-term stewardship through contractual agreements.

Project Management. Mr. Swindle explained that the Committee's objective is to assist Mr. Marvin Garcia, Director of the EM Project Management Office (EM-6). Assistance will be in the form of providing input and recommendations on the function and operation of EM-6 keeping in line with the Secretary of Energy's FY '01 priority to establish improved program and contract management in DOE programs. Areas in which the Committee is working are:

- project selection (capital assets list);
- project manger training in EM (this refers to a former recommendation to provide a career project management path which has been adopted DOE-wide);
- Office of Engineering and Construction Management (OECM) implementation of DOE Order 413.3 - Program and Project Management for the Acquisition of Capital Assets; and
- how EM-6 and OECM interface especially with regard to the reporting system that OECM is putting into place and how apparent redundancies with IPABs will work out.

Mr. Swindle noted two project management areas the Committee will be working in. He said the first area stems from the National Research Council (NRC) assessment of project management in DOE in which the NRC recommended there should be more accountability for projects in DOE at the headquarters level. The C&M Committee is looking into this

accountability issue, particularly into the delegation of authority in contracts and who in these cases is the project manager. A second area pertains to a recent C&M Committee recommendation to establish a project management career program. He noted that this also parallels a NRC recommendation to establish a departmental-wide training program for project managers.

Mr. Swindle reviewed some proposed solutions that are being worked on within the DOE and EM. He said that the government, as the entity accountable for projects, must clearly be the owner of projects with contractors providing needed support. He said that timely reviews and reporting are keys to success and that criteria for selecting a project for review should be clear. He said that DOE has committed to establishing Department-wide training for project managers, not only as a development pathway for recruiting and retention, but also as a reward and incentives for managers. Mr. Swindle noted that there is a Project Management Career Development Program (PMCDP) Task Force that was established and that EM-6 recently held a project management workshop co-hosted by Nevada Operations Office. One outcome of the workshop was the decision to proceed with implementation of DOE Order 413.3.

Mr. Swindle explained another outcome of the workshop is development of a Capital Asset Projects (CAP) list. He explained that sites look at their priorities in terms of where they need project management assistance and where headquarters can get involved before a project is underway (which equates to the CD-0 level in project manager terminology). A potential product of the list is for HQ to be able to detect early if a problem exists before costly mistakes are made and to refine the processes and practices that will go forward.

Mr. Swindle also reviewed the charter of the PMCDP Task Force. He said its objectives are to:

- establish and implement a career development program that will enhance the knowledge, skills and abilities of current project managers;
- develop the skills necessary to be a DOE project manager; and,
- establish a career development tracking system to monitor progress.

A goal of the PMCDP is to develop a draft project management certification program by December 2001.

DOE Contractor Base Study. The Office of Contract Reform and Privatization (PC-1) completed an analysis of the DOE Contractor Base in January 2001. Key conclusions follow.

- DOE needs to improve its understanding that it must compete in the marketplace for contractor resources where higher yield contracts tend to get higher quality resources.
- EM needs to upgrade its risk management practices to reflect EM's mission of managing cleanup projects so that contractors are not asked to assume more of the risk for the same amount of award.
- DOE needs to improve subcontractor performance through procurement and project management practices with contract performance clauses clearly stated.
- Technology use needs to be expanded by aligning DOE, contractor, and subcontractor incentives thus enhancing competition.

Workers' Compensation. Mr. Swindle explained that the C&M Committee began an initiative to examine options to improve worker safety through contract mechanisms looking at DOE site workers' compensation costs and their linkage to worker health and safety. He said that DOE reimburses contractors on a cost basis for their payments to states for Workers' Compensation Insurance. The Committee found that details of DOE workers' compensation payments are not monitored by HQ and that the basis of the cost of those payments are not well understood. He further explained that a gap exists in management responsibilities between HQ and Field and that there is no measurement between workers' compensation cost and worker health & safety.

Given these findings about workers' compensation costs, Mr. Swindle explained that the Committee is exploring the concept of how to "provide incentives to DOE contractors through workers' compensation reimbursement to improve safety and health programs while reducing cost." He called this a "shared savings" initiative, which the Committee is working on in coordination with the WH&S Committee, the Director of EM-5, and the Office of Environment, Safety and Health (EH).

The chairs of the two EMAB committees and EMAB staff have been looking into the feasibility of examining workers' compensation costs in EM and relevance to worker health and safety. Mr. Swindle said the Committee determined that the exploration of this subject could have great benefit to both EM and DOE. The Committee will review private sector work practices to explore workers' compensation costs at various sites to provide a clear estimate of costs, identify best practices for managing worker safety and health risk, and to estimate potential savings while improving safety.

Mr. Swindle said the Committee's next steps include:

- continuing the workers' compensation work with WH&S Committee and EM-5;
- review the process and plans for a DOE Project Management Career Development Program;
- review EM-6 activities on the implementation of DOE Order 413.3;
- work with the WH&S Committee and EM-OST on contract mechanisms for S&H in TD;
- work with the LTS Committee on enhancing LTS through contract arrangements; and,
- work on parallel efforts in project management.

Mr. Winston noted that EM has been working to improve its project management since it turned to "projectizing" the Program. He also noted one of the areas in the letters to the Governors for efficiencies was project management. He asked what additional things to improve project management would the C&M Committee want the Department to do that they are not already doing now. Mr. Swindle said the Committee needs more time to look into what more can be done. As an example of an obstacle to better project management, he noted that the field is continually asked to report information on projects, which demands a lot of resources. The question then is what balance of time is spent on "answering the mail" and what is spent on managing the project.

Mr. Garcia added that EM project managers have been doing more contract management

than project management. He said what is required is more a culture change to teach project managers to be more forward looking to improve cost estimating, scope delineation, risk analyses and other skill areas. He noted that the program is looking at design and construction type projects from the CAP for projects that can be improved with better skills in these areas.

Responding to a question from Mayor Linda Milam about resource requirements for the Project Management Initiative (PMI), Mr. Garcia said he doesn't think it translates to additional staff. He said the attention that is being applied to improved project management through PMI means to be more proactive about the profession of project management. He said that HQ's goal is for Project Management to be viewed as a professional responsibility for the task at hand and not simply a label for a point of contact for a project.

Ad Hoc Committee on Performance Measures and Leading Indicators

Mr. Swindle, Co-Chair with Mr. Moran for the Ad Hoc Committee on Performance Measures and Leading Indicators (PM/LI), provided an overview of this new Ad Hoc Committee's task. He said the task is to consider the development of occupational safety and health performance measures for senior EM management, specifically leading indicators, to see if there are trends that need correction or if there are successes that need to be taken to other sites as lessons learned. He said the Committee plans to meet with an external expert panel to look at private sector PM/LIs to see how they use them to manage business from a cost and safety perspective. The Committee may eventually recommend that EM pilot such performance measures at a DOE/EM site to ascertain their effectiveness and value to the site and headquarters.

Mr. Swindle explained that performance measures normally measure past activities and were often used to:

- document the performance of an organization;
- identify high-risk industries, operations, tasks, occupations and jobs;
- evaluate an organizations S&H performance relative to peers;
- evaluate the effectiveness of S&H prevention programs; and to
- identify additional S&H interventions.

Mr. Swindle noted that literally, the current S&H statistics are lagging indicators and they do not indicate where an organization is going and how to preempt rather than react to safety and health issues. He said that Mr. Moran has developed a white paper that details the issue further. The Committee will begin by looking at potential measures that could be tracked as leading indicators that serve EM senior management.

Mr. Moran added that the development of leading indicators is a difficult and challenging process. He said that it is an important and major step forward by EM-5 as a way to enhance the developments in ISM and to reduce incident rates. Dr. Paulson added that Mr. Scott has been at the forefront of this effort and the collegial relationship with EMAB on this is very strong.

Mr. Bennett introduced Mr. Begley, ATIC Co-chair and member of the TD&T Committee. He also acknowledged Mr. Richard Burrow, Deputy Director of the Secretary of Energy Advisory Board (SEAB), who was present at the meeting.

Alternative Technologies to Incineration Committee Report

Mr. Begley provided an overview of the new ATIC. He said the Committee was created as a result of a recommendation by a Blue Ribbon Panel that the Secretary of Energy formed as a result of a Settlement Agreement with concerned citizens from Wyoming and Idaho who protested DOE's plans to incinerate mixed TRU and Low-Level waste at INEEL. The Panel was formed to examine alternative technologies to incineration for existing waste and they recommended that a citizens working group be formed to monitor the development of alternative technologies to incineration.

Mr. Begley explained that Secretary Richardson called for the establishment of a committee under EMAB to function as the working group recommended by the Panel. The Secretary also called for increased communications with existing citizens advisory boards across the DOE complex and for a national stakeholder forum to bring together technical experts and interested members of the public to exchange information.

Mr. Begley explained that Assistant Secretary Huntoon tasked the Office of Integration and Disposition to develop an overall EM Action Plan and the Office of Planning and Budget (EM-10) to develop a plan for a national stakeholders' forum. He said that initial planning dialogue is scheduled for late April at Salt Lake City.

Mr. Melillo, EMAB Executive Director, developed the charter for the ATIC. The Committee will report to EMAB. Mr. Begley said that the Committee will have two co-chairs, a representative from each of the two major parties to the Settlement Agreement, one representative each from the Governors of Wyoming and Idaho, and ten "at large" members. He said that the next step is to conduct an organization call once membership has been fully established.

Dr. Berkey asked about the implications of this Committee when a report and/or findings are brought to the EMAB for modification or approval. Mr. Begley said that it will operate as any normal committee under EMAB.

Ms. Crandall asked how the public could be involved with the Committee. Mr. Begley responded that the ATIC will solicit input from those in the technology industry and other interested individuals. The Committee will advise DOE. It is DOE that is conducting the R&D program to determine if there are more viable alternate technologies than the current incineration application. Ms. Crosland, Director for the Office of Intergovernmental Affairs (EM-11), added that EM is in the preliminary stages of developing the forum and the process for the Committee, and that the specifics are still being ironed out. Mr. Begley clarified that the role of the Committee is to "recommend to the EMAB certain items that, from a public perspective, are appropriate to be considered by the DOE in the conduct of the RDD&D (research, development, demonstration, and deployment) program" as it pursues viable alternatives to incineration. He said the ATIC exists so that there will be appropriate public involvement during the process of considering alternatives, rather than after the fact, so as to ensure all the appropriate considerations are taken into account.

Dr. Paulson noted that due to the constitution of the ATIC, the EMAB membership would shoulder a larger burden than is usual to follow the normal operating procedures of EMAB

committees. Mr. Korkia pointed out that the Board will have expectations of the committee and vice versa. He said that the role of the Committee should be clearly identified to avoid potential misunderstandings or conflicts. There was discussion about how to monitor the progress of ATIC. Dr. Ahearne offered that the National Academy of Science (NAS) has a liaison on some of its committees who is not a member but who functions in a role to advise the Academy on committee activities and that perhaps there could be a liaison on the ATIC to advise the Board of ATIC activities.

Ms. Yupe suggested that EM-11 and she work together to ensure that concerns of the Northern and Eastern Shoshone Tribes are taken into account for this process, which Ms. Crosland agreed to do.

Mr. Burrow stated that he appreciated the diligence by the EMAB on following up on the SEAB recommendation and promised to work closely with Mr. Melillo to be certain that all of the stakeholder issues that surfaced during the SEAB meetings are taken into account as ATIC moves forward.

Initial Public Comment Period

Mr. Bennett asked if any member of the public wished to offer comments. There were none.

Mr. Kucera stated that USA Today contacted him regarding a series of studies by the DOE Office of Environment, Safety and Health (EH) that were recently released about the historical movement of reprocessed uranium going to various sites across the country. He said there were a couple of issues he was asked about. First, the shipments involve sites not in the EM realm. Second, for sites that are near completion, there is question as to whether adequate diligence has been given to the status of cleanup at those sites and whether attention has been given to fission products that could be at a site. He said he would like to know if there are implications for EM on this. Mr. Bennett said the staff would look into this and get back to Mr. Kucera.

[The Board adjourned at 5:50 P.M. for the day.]

APRIL 18, 2001

Dr. Bodde opened the meeting at 8:40 a.m. and reviewed the day's agenda. A draft copy of the ATIC charter was provided to the Board (see **Appendix B)** as well as a summary of the ES&H port on recycled materials that Mr. Kucera spoke about. Mr. Bennett also noted that Dr. Joseph Spencer, an EMAB consultant on the TD&T Committee, will serve as a liaison between the ATIC and the EMAB.

EM FY 2002 Budget Request

Mr. Schmitt, Acting Deputy Assistant Secretary for EM-10, provided an overview of the FY 2002 budget request for EM. He said the $5,912,761 budget is based on the following priorities:

- Protect worker health, safety and the environment;

- Address high-risk clean-up problems (e.g., high-level radioactive wastes, spent nuclear fuel, and special nuclear materials);

- Make progress toward major site closure (e.g., Rocky Flats, Fernald, and Weldon Spring);

- Increase shipments of transuranic (TRU) waste to the Waste Isolation Pilot Plant; and

- Develop and deploy innovative technologies and invest in science.

Mr. Schmitt discussed some EM strategies toward the budget:

- strengthen project management;

- reduce cost through innovative, performance-based contracting strategies;

- continue to work closely with regulators, stakeholders and tribal nations;

- integrate nuclear materials management and waste operations among sites;

- plan for long-term stewardship.

Mr. Schmitt noted that the budget is within the same funding range as the past five years and is fairly level with the FY 2000 budget. The figures he presented are in current dollars and some of the offsets from prior years are not in the '02 budget. He reviewed the distribution of the budget among the five appropriations accounts:

- Non-defense EM - 4%;

- Defense Facilities Closure Projects - 18%;

- Uranium Facilities Maintenance And Remediation - 6%;

- Defense EM Privatization – 2%; and

- Defense ER & WM – 70%.

The request for the closure account is $1.05 billion, a $30 million reduction from the FY '01 budget. The Rocky Flats budget is fully funded to complete plutonium stabilization in FY '02 with shipment off-site in March 2003 and maintained closure schedule of 2006. In addition, Fernald will be fully funded, although there may be delays at smaller sites (e.g., Mound).

Mr. Schmitt said the request for the Environmental Restoration and Waste Management (ER&WM) account is $4.12 billion, a $400 million reduction from the FY '01 budget. He added that high-risk problems will be adequately addressed to maintain schedule. He said there is $500 million to begin construction of facilities for the clean-up plant at Hanford in FY '02 and stated that Hanford believes it can maintain its scheduled FY '07 start-up. Mr. Schmitt said he recognizes that future funding constraints in FY '03 and beyond may impact this project. Dr. Berkey asked about the contractor's perspective on the schedule for the waste treatment plant at Hanford. Mr. Owendoff, Principal Deputy Assistant

Secretary, said the budget allows Hanford to continue within schedule. Mr. Schmitt reviewed a few other elements of the ER&WM appropriation account.

Mayor Church said the 1993 Government Performance and Results Act (GPRA) called for closure of Mound in 2006 and noted that the current budget would not get the site closed until 2010. Mr. Church noted that the Mound site is the only one with an end use where jobs for the city and state would be created (Rocky Flats and Fernald will be leveled). Mr. Schmitt and Mr. Owendoff acknowledged that fact and cited complex-wide priorities as the basis for budget decisions that impact other sites.

Mr. Schmitt said the Non-Defense EM account will have a slight reduction from FY '01. He said completion of the vitrification operations at West Valley would not end EM involvement at the site. He said the fuel would remain there.

Mr. Schmitt explained that the Gaseous Diffusion Plants (GDP) account is new. There was discussion about the Decontamination and Decommissioning (D&D) fund account that Congress combined with some activities previously managed by the Nuclear Energy (NE) program (i.e., responsibility for the treatment of uranium). He said that EM recognizes there is new scope to the program and it allows EM to get on with turnover of uranium enrichment to cold stand-by mode so that if the nation needed enrichment capability in the future it could bring it back up.

Mr. Swindle asked about the established D&D account that gets its funding from surcharges on nuclear fuel or nuclear generated electricity, and whether such D&D funds were applied for its intended purpose. Mr. Schmitt stated the budget for the D&D account is complicated. He explained that there are contributions from the utilities and from government. In deciding what will be spent from the account, he said the D&D of the Portsmouth facility hasn't begun yet but some remediation work at Oak Ridge has been classified as D&D and EM can use money from the D&D account for this purpose.

Mr. Owendoff briefly noted why this account could be quite complicated. He explained that receipts from the utilities go into the Treasury and then what must come out for DOE to use in a D&D operation is treated as a new appropriation. The flow of money from the utilities to the Treasury is "scored" just as taxes are. Thus, since the funds from the utilities don't go straight to DOE it complicates the accounting for D&D account funds. Another matter complicating this account is that the Congress had not authorized spending from the D&D account in the past except for FY '01.

Mr. Schmitt said there are six projects in the Privatization account, four of which are continued requirements. There will be two new projects in FY '02, one in Portsmouth and one in Paducah, so that waste can be stored on-site as well as letting the Department continue with plans for waste shipments to Nevada. Mr. Winston questioned the rationale of a privatization account for a project like Portsmouth where there hasn't been a feasibility study and where there is very little stakeholder support. Mr. Owendoff said that EM wanted a funding source mechanism available so that, as clean-up moved forward, there would be a model in place so that EM could accelerate the work and be prepared with a place to put the waste.

Mr. Schmitt concluded his review of individual accounts.

Dr. Berkey said that compliance with existing agreements is noticeably missing from the list of strategies toward the budget. Mr. Schmitt said that compliance remains a priority for the program and that there are priorities in the FY '02 budget. He said most sites have compliance strategies and the Department is not telling the regulators that it is time to sit

down to renegotiate. He talked about the top-to-bottom reviews for efficiencies mandated by the Secretary of Energy, which will involve regulators and stakeholders. He did not deny that EM has significant compliance challenges ahead. Mr. Owendoff added the Secretary's letters to the Governors were meant in part to ensure the states that the new administration understands the significant costs associated in the EM program and how compliance agreements are driving them.

Mr. Hooks noted that some of his regional offices have been "engaged to renegotiate agreements." He said the EPA at this point is not interested in renegotiating and Mr. Owendoff agreed that it is premature to say it is time to renegotiate. Mr. Owendoff said that from a budget standpoint, EM is trying to assess if it has the right drivers and where to put the money in the business model. He said the sites can not consider trying to move compliance dates until they can demonstrate efficiencies. If there are sites that are saying they want to renegotiate, Mr. Owendoff said he wants to know about it.

Mr. Schmitt said there is $196 million in the science and technology account which is down from about $250 million in FY '01. He noted that EM will continue all ongoing research and science efforts but there will be limited new initiatives.

Mr. Martin said with regard to the "accomplishments" slide, the demise of the contractor on the Hanford waste treatment plant, and that DOE's ability to pick up the pieces quickly and issue a new contract is something for which EM should take credit.

Mr. Ross questioned the imbalance of the approximate 14% cut for transportation and packaging and asked how the increased number of shipments to WIPP will be accomplished. Mr. Schmitt reiterated the Assistant Secretary's challenge for increased efficiencies across the program of 5-10% and noted that the majority of the decrease in funding is attributed to operations at the Carlsbad Office. Mr. Huizenga, Deputy Assistant Secretary for the Office of Integration and Disposition, admitted there are tough challenges and they are working to identify where exactly money is being spent. Mr. Ross said that was good because there are fixed cost contracts with fixed prices.

There was discussion about stakeholder input in the FY '02 budget process and the appearance that it differed from previous years when in fact normal comment cycles were only delayed a couple of months in light of the atypical election year and its delayed results.

Presentation on Disposition Mapping

Dr. Linda McCoy, Deputy Chief Scientist and Deputy Assistant Manager in the DOE-Idaho Operations Office of Research and Development at the Idaho National Engineering and Environmental Laboratory, introduced a presentation regarding EM integration. The purpose of the discussion is to alert the Board to extensive work that has been going on in CWID.

Dr. McCoy said EM integration is a process that began about five years ago under the leadership of then Assistant Secretary Al Alm to look at the EM relationships between the field and HQ and to establish a prototype for integration. She explained that they took all site treatment plans, site milestone schedules, and other activities going on around the complex and looked for efficiencies, overlaps and gaps, and amalgamated everything about EM across the complex in a single integrated tool. The resulting disposition maps are a graphical way to look at the complex.

Dr. McCoy noted that disposition mapping started out small and has evolved into a complex wide effort led by Deputy Assistant Secretary Huizenga. She said the level of analysis that has been done is not always analogous to the end product. She explained some uses of disposition maps. One use allows verification that EM's R&D program is in tune with its needs. For example, with the R&D master plan Idaho is working on any research can be "rolled back" and linked to an identified need in EM. Other data indicates what the priority is, what is needed, and when.

Dr. McCoy concluded with two points. First, she said there has been a lot of analysis and there is a lot of data. Second, the data allows EM to make informed decisions about priorities, which is particularly important in times of limited budgets. She then introduced Dr. Paul Kearns, Associate Laboratory Director at INEEL for Environmental Technology and Engineering, and Mr. James Herzog, Department Manager at INEEL for Integration and Technology Utilization.

Dr. Kearns said INEEL is proud and excited about its designation as lead laboratory for EM and how the laboratory can support the complex. He explained that before INEEL can suggest a tool such as disposition maps to other sites, INEEL should have a tool that is proven. He said he would be discussing the tools that have been developed from the complex-wide integration activity and how they are valuable. He noted that his presentation would respond to some of the perceptions articulated in the "Incinerating Cash" report.

Dr. Kearns said the INEEL takes responsibility for cleanup seriously. The INEEL has a long history with 52 reactors on site at one point. INEEL is the lead laboratory for the Office of Nuclear Energy and is also the lead laboratory for EM. As EM's lead laboratory since June 2000, INEEL contributes value through:

- promoting complex wide collaborations;
- leading science and technology development for long-term environmental stewardship;
- championing complex-wide integration and planning;
- managing assigned national programs; and,
- leading by example.

Dr. Kearns said EM challenges at INEEL are significant. For example, there are 1.2 million gallons of liquid radioactive waste about 400 feet above the Snake River aquifer and INEEL has a large percentage of DOE's spent nuclear fuel (SNF) on-site. INEEL is obligated to safely store and eventually transport that SNF to a repository.

Dr. Kearns said that INEEL views the EM cleanup stewardship mission in four parts. The first part is to chart a baseline; second, identify barriers and needs; third, develop and analyze solutions; and fourth, insert the solution into the executable baseline. To establish the baseline, there may be a critical activity that is uncertain in terms of understanding how to move forward (e.g., a treatment or characterization technology, or a real problem that isn't understood like how waste decays over time). He said the utility of the disposition maps is to identify the barriers and needs.

Dr. Kearns showed the Portsmouth mixed low-level waste (MLLW) disposition map (similar

to a flow diagram) that identifies each MLLW material and the waste stream (i.e., how it will be processed, treated and then disposed). He said there are inventories for each waste stream that are updated annually. He said the maps indicate a level of confidence on moving forward. A green dot means EM understands the problem and has a technology to move forward. A yellow dot means EM doesn't quite have the understanding of the problem or a solution and red means there is no defined problem set or identified solution. Dr. Kearns said that the map is a valuable communication tool that graphically represents what exists for a given waste stream and how EM plans to handle it. Dr. Kearns showed a MLLW disposition map for Argonne National Laboratory - East. He pointed out that the different colors of the waste streams represent different sites.

Mr. Herzog noted there are three types of barriers. There can be a technical base issue, a non-technical issue (e.g., scope), or a site interdependency barrier where one site is planning to ship waste to another which is not ready to receive it.

Dr. Kearns explained that there are 116 waste streams that have red lights that represent technology barriers (EM-50 type) and 204 streams that have red lights that represent non-technology barriers (EM-20 type). He said that site and national level resolution are required for these waste streams. A cross section of the two barriers sets show there are 66 waste streams that have both technological and non-technological barriers.

Dr. Kearns said the complex-wide integration and disposition vision is to achieve a forward looking, system-wide understanding of EM's waste disposition needs and to ensure there is an appropriate infrastructure of facilities, technologies, and capabilities to treat, store, and dispose of all waste in a safe, efficient, and cost-effective manner. He said the activity works because there is active participation by the contractors in the group and there is ownership in headquarters.

Dr. Kearns said there have been collaborations to remove barriers and he reviewed some of the accomplishments of the integration and disposition activities. For example, a disposition path for orphan nuclear materials at Mound, Fernald, and Rocky Flats was identified which helped to consolidate TRU waste from small sites to large sites and to allow site closure through integration. He added that a national schedule has been developed for the shipping of high-level waste and spent nuclear fuel to a repository, which helps to make sure the number of containers and volume of waste on the road at the same time are feasible and legal. Mr. Huizenga noted the schedule defines shipping rates.

Dr. Kearns showed a series of slides demonstrating how the four-step cleanup to stewardship process works. For identifying needs and barriers, he said that INEEL has developed technology roadmaps by engaging regulators, the R&D community, and the problem holder. He said this has proven successful (e.g., there is now a high-level waste S&T roadmap that shows the path forward for both calcine wastes and sodium/barium wastes). He said INEEL also developed a roadmap for what is called Voluntary Consent Orders with the state on problems that might otherwise remain static.

Dr. Kearns explained that INEEL requires short and long-term problems be identified through development of the Detailed Work Plan (DWP) in which S&T needs are accounted for in the baseline planning process. He said it has been a real success because it gets the problem holder engaged in the conversation and preparation of material to develop the DWP. He said that INEEL has over 200 needs that need to be addressed through S&T improvements.

Mr. Huizenga stated the maps are integrated tools that help to keep track of a $6 billion a

year program. He acknowledged and thanked those who contributed to the vision and to the development of what started out as the EM Integration effort (Al Alm and Greg Frandsen and Clyde Frank from the early days). He said collaborations with OST support the work and he thanked INEEL for its excellent work. Ms. Crandall asked if the maps are integrated with other programs (e.g., Materials Disposition). Mr. Huizenga could not comment specifically but believed that the contractors involved in developing the EM disposition maps would likely have some cross over into NE and Defense Programs.

Regarding the national schedule for SNF disposition to a national repository, Dr. Ahearne asked if the schedule accounted for commercial (power reactor) spent fuel and commercial shipping points. Mr. Huizenga stated that his Office interacts with the Office of Civilian Radioactive Waste Management (RW) but he was not certain if they had a similar "queue" worked out for their fuel points and the receiving sites. Mr. Bechtel stated that they do which is actually defined by contract.

Mr. Ross endorsed the utility of the disposition maps and how they work into the strategy to integrate the systems and he invited Mr. Huizenga to an open dialogue with the Integration and Transportation Committee to further explore the usefulness of the CWID activity.

Dr. Kearns showed the INEEL TRU waste disposition map demonstrating how the red lights help to bring together a system of laboratories and national intellect to solve problems. He also showed a master schedule INEEL developed which charts the research programs to the operational initiatives. It crosswalks all S&T needs to research programs including those funded by external organizations, EM-50, and other DOE offices. Dr. Kearns showed a snapshot of the integrated master schedule and how he can track a project by its' technical task plan (TTP) which identifies the investigator, funding levels, the actual S&T need, and the expected benefit of the research activity itself. He dubbed it an essential tool for him as a manager and explained how the master schedule helps to tie a solution that can be 'plugged' into a technology insertion point on a disposition map.

Dr. Kearns concluded by saying that the Idaho Operations Office has taken responsibility for deployment of newer and more innovative technologies with the goal of more efficient solutions. He said he has found that often a technology is frequently used but not documented in a way that OST can take credit for it, so INEEL is also working to help OST improve deployment documentation processes. In addition, Dr. Kearns noted that contract incentives are working to motivate change from the 'old way of doing things' to getting greater use of new and improved scientific and technological approaches to EM problems. He noted there have been 44 technologies deployed at Idaho, 25 of which resulted from direct OST investment.

Mr. Winston complimented development of the CWID system and its success with involving states, tribes, and local communities to put it together. He noted that stakeholders sometimes believe a waste management or materials disposition decision is forced upon them, independent of complex-wide considerations. He agreed with Mr. Ross that the tool has great potential for integration of systems that take into account regulatory and political hurdles as well as S&T technical challenges. He said that most states, much like his state of Ohio, are concerned about that the burden of waste management thrust upon them. He said that states want to be sure such burdens are equitable and that compliance agreements the Department is committed to for handling wastes are credible (i.e., there is an ability to ship wastes off-site). Given the tight budget request and the credibility of cost savings without level budgets, Mr. Winston noted the CWID effort could be a powerful tool if linked to budget development. He said it would help to realize gains of key dynamics between inter-site needs and resources.

Mr. Kearns agreed that would be helpful and he offered more could be done. However, he replied that the integration and disposition data is only updated on an annual basis from the IPAB system. Thus, there is not a direct link from the maps to the budget development because disposition maps do not represent a real picture in time in which to base a budget.

Ms. Yupe asked about the connection of the entire disposition map process to the "environmental check sheet" to assure that all resources are protected. Dr. Kearns believes they are strongly connected since the decision to take a disposition pathway as suggested by the analysis would go through the appropriate review process.

Dr. McCoy remarked about the point of utilizing CWID data in budget development and said there seems to be a "disconnect" between tools and policies. She said that INEEL, as the lead laboratory, provides the tool (which incidentally, she views as an analytical R&D project). She said that INEEL tries to provide the data and recommendations based on data in terms of technical competence but that EM management needs to provide the policy decisions. She said the budget cycle is 2.5 years ahead of the implementation cycle, which complicates linking the budget to the mapping tool.

Dr. Paulson asked how the intellectual quality control is done to change the color of a decision point from yellow to red or red to green. Dr. Kearns responded that a variety of discussions are held on the status of a technology and on decision points. Dr. McCoy said there is a strong validation process for each point on the disposition map.

Ms. Logsdon cited figures from the strategic plan that calls for complete cleanup of 22 geographic sites by the end of FY 2001, increasing the total completed from 91 to 113. She asked about the integration of the maps and how credible they are in the environmental remediation area. Dr. McCoy said the maps are very mature for waste management streams but they are just under way for ER projects.

Second Public Comment Session

Dr. Bodde asked if there were any public comments. There were none.

EMAB Work Plan

Mr. Ken Smith, EMAB Staff Director, provided an overview of the Board Work Plan giving a summary mission statement and a discussion of proposed tasks for each committee. He said the EMAB operates under a set of informal "Rules for Committees." They are:

- Raise questions that are bounded, and not open-ended.
- Raise questions that can be answered in a finite period of time.
- Produce a report with clearly defined recommendations.

Science Committee. Mr. Smith said the mission of the Science Committee is to:

- examine the quality of science in the EM program and emphasize where new science and technology are needed;
- examine science based programs for effectiveness; and,
- analyze scientific and technical problems and issues as they arise.

He said the Committee believes that continued developments in scientific knowledge are key to resolving mid- and long-term EM problems. The Committee has multiple links with the TD&T and LTS committees with joint projects planned, underway, or completed. He said that multi-disciplinary committees make good use of Board resources.

Mr. Smith said that the Science Committee plans to continue its review of the quality of science stemming from the EMSP which will help EM-50 in formulating and modifying calls for proposals. He stated the Committee goal is to accomplish two sets of reviews a year in conjunction with the Board semi-annual (Spring/Fall) meeting schedule.

TD&T Committee. Mr. Smith said the mission of the TD&T Committee is to develop recommendations that could be implemented to facilitate the development and use of environmental technologies capable of addressing DOE environmental problems. He reminded everyone that the Committee has an on going "status review" of the OST program.

Mr. Smith said the Board believes that effective performance measures are a valuable management tool in shaping program direction. He said the Committee's next task will focus on helping EM define better performance measures for S&T. The Committee plans to have a final report on this topic by Spring 2002. The Committee will also monitor and assist in the work of the WH&S Committee on performance measures and leading indicators. The Committee will continue its cooperative work the Science and C&M committees as well.

Contracting and Management Committee. Mr. Smith said the C&M Committee mission is to provide advice to EM-1 on contracting and management activities impacting EM mission accomplishment including:

- project management development and training policies and processes;
- organizational management;
- contract structures and incentives;
- site completion and closure activities; and
- programmatic risk.

He said the Committee is working on two continuing tasks: 1) workers' compensation and savings that may be realized through a restructuring of how DOE handles workers' compensation; and, 2) the Project Management Initiative. The Committee is also working with the WH&S Committee on performance measures and with the LTS Committee on incentivizing long-term stewardship planning. Mr. Smith said that the Committee expects to have a report in the Fall of 2001 on the workers' compensation effort that explores the potential benefits to DOE, contractors, and workers by improving safety and reducing compensation costs.

Worker Health and Safety Committee. Mr. Smith stated the mission of the WH&S

Committee is to make recommendations to EM-1 on:

- worker and community health and safety issues including risks to workers, the public, and the environment as appropriate; and on,

- health and safety regulations and criteria from other government agencies and the private sector to determine areas in which they compliment those of the DOE.

He said the Committee is working on sustaining the momentum of the Integrated Safety Management System (ISMS) as well as the relationship/impact of a new safety rule (10 CFR 830) on ISMS and the EM-5 and EH relationship. The Committee intends to have recommendations at the Fall 2001 or Spring 2002 meeting on ISMS and on the implementation of the new CFR rule.

Long-Term Stewardship Committee. Mr. Smith stated the mission of the LTS Committee is to provide recommendations on actions EM should take to prepare for and make the transition, concurrent with its current active programs, to long-term stewardship of waste material and property. He said the Committee is restructuring to form three subcommittees to address specific LTS issues. Each subcommittee, its mission, and task/expected product follow.

The Subcommittee on Non-DOE Sites will examine the status of sites external to DOE that become DOE responsibilities for LTS and expects to provide recommendations on steps to ensure smooth transition to DOE responsibility.

The Subcommittee on Institutionalizing LTS Through Contracts will work with the C&M Committee to try and ensure that LTS requirements are considered when developing DOE contracts. The Subcommittee expects to provide recommendations on how to incentivize such requirements in DOE-EM contracts.

The Subcommittee on Intra-Department Site Transfers will examine how to address challenges associated with site transfers and LTS activities and expects to provide recommendations on how to maintain LTS activities after transfer outside of EM.Integration and Transportation (I&T) Committee. Mr. Smith stated the mission of the I&T Committee is to provide advice to EM-1 on complex-wide integration relating to environmental cleanup and characterization, treatment, shipment and disposal/storage of waste, and the management of the transportation of such waste. He said the Committee is continuing work to monitor transportation protocol development and will work with EM-20 on productive work areas.

Alternative Technologies to Incineration Committee. Mr. Smith stated the mission of the ATIC is to:

- examine candidate technologies for treatment and disposal of mixed TRU and low-level wastes previously scheduled for incineration; and,

- facilitate stakeholder comment and communications.

He said the Committee task results from the Secretary of Energy Advisory Board Blue Ribbon Panel that was examining technology alternatives to waste incineration at INEEL. He explained further that the work of the Committee may overlap with future transportation, waste packaging, and/or D&D efforts and that the Committee may use working groups for site visits. Mr. Smith said there will be 16 members on the committee

and that the expected completion date for the Committee is several years out, perhaps 2005 or beyond, and that may be an optimistic completion date.

Ad Hoc Committee on Safety and Health in Technology Development. Mr. Smith stated the mission of the Committee is to examine options for defining responsibilities for S&H in technology development, demonstration and deployment. The Committee consists of members from the C&M, TD&T, and WH&S committees.

Mr. Smith said the Committee is currently assisting EM-5 and EM-50 in the implementation of the new EM policy on S&H in TD. The Committee will also work to evaluate the actions taken in response to the Portsmouth accident and on using contract incentives to promote better S&H.

Ad Hoc Committee on Performance Measures as Leading S&H Indicators. Mr. Smith stated the mission of this new Ad Hoc Committee is to identify S&H performance measures, to include leading indicators, of existing conditions that if corrected, will improve safety around the EM-complex.

Mr. Smith concluded his overview of the work plans submitted by the EMAB committee chairpersons. Dr. Bodde stated he thinks it is important to do the policy level work that EM-1 needs but at the same time there is a responsibility on the Board committees to bring issues forth as they become known. Dr. Bodde added that given the present period of transition in the EM Assistant Secretary leadership position, he invites further discussion with the committee chairpersons looking at the value added of EMAB work to the EM program.

Mr. Martin iterated concern and uncertainty about the top-to-bottom review, about what questions it asks and what process it will follow given the transition of the EM-1 job. Dr. Berkey stated he thinks it would be useful to map committee objectives against budget priorities to see if EMAB is addressing EM budget priorities and to see if there is a need to reconfigure plans in light of the data made available in the FY '02 budget. He suggested that perhaps other elements of the EM program deserve the same attention and help from EMAB that EM-50 receives.

Dr. Ahearne asked about the status of the EMAB budget. Mr. Melillo stated the had not been given any feedback one way or the other on the budget but that he did not expect any negative impacts.

Mr. Ross stated that the I&T Committee will continue its dialogue with EM pertaining to site interdependencies and how transportation works. He said he believes there needs to be a strategic planning process put into place which takes the entire complex into account, particularly when looking at transportation. He said that the Committee is in its initial stages and he looks forward to helping EM meet its transportation and integration objectives.

Ms. Crandall suggested that perhaps further public outreach is warranted in the way EMAB committees work. Discussion ensued on the topic and Dr. Bodde iterated that an EMAB committee meeting is a working group meeting that operates under the auspices of the Federal Advisory Committee Act. Committee meetings are open to the public but do not require announcement in the Federal Register, nor are verbatim transcripts required. EMAB announces all meetings in its bi-weekly report and minutes of all meetings are available on the Internet.

Dr. Berkey noted that in addition to a transition to a new EM Assistant Secretary, that Mr.

Card will be the new DOE Under Secretary following Senate confirmation. He said that Mr. Card has had an impact on the EM program in the past and that he has keen interest in project management issues. He suggested that a copy of Mr. Card's biography be circulated to the Board.

Board Business

Vote on Resolutions. Dr. Bodde called for a vote on the three resolutions before the Board with the understanding that resolutions are changed upon vote by the Board to reflect that the full EM Advisory Board is making the recommendations and not individual committees. He stated each resolution will be presented to the table and then opened for comment from the Board and from the public.

The Board motioned and seconded to approve the *"Resolution on the Role and Status of Basic Science in Accomplishing the DOE-EM Mission."* (See **Appendix C**.) It was unanimously approved without comment from the Board or public.

The Board motioned and seconded to approve the *"Resolution on Status Review of the OST Program."* (See **Appendix D**.) It was unanimously approved without comment from the Board or public. Mr. Ross noted that one of the recommendations in the resolution states to make "better use of complex-wide integration and disposition tools" and he offered the I&T Committee's help in this area.

The Board motioned and seconded to approve the *"Resolution on the Quality of Science Stemming from the EMSP."* (See **Appendix E**.) It was unanimously approved without comment from the Board or public.

New Business. Dr. Paulson noted for the record that the briefing book contained a letter from Mr. Scott responding to the Board's October 16, 2000 letter to Dr. Huntoon. The initial letter pertained to ISM implementation.

Dr. Paulson also suggested that the Board Staff analyze the entire history of EMAB recommendations, not necessarily for impact, but to organize them to see what the Board has helped with in the past and to help identify any gaps where the Board has not been involved. Mr. Melillo agreed that would be of value and that the staff, in fact, has been working on such an effort.

Ms. Yupe noted a need for greater attention to the preservation of historic properties and the need for greater interaction with the Federal Preservation Office at DOE-Headquarters and how to be compliant with the Preservation Act as well as with American Indian Policy. Mr. Winston noted the LTS committee has a niche in preservation and he stated that while EMAB has an EM focus, there are a lot of sites nearing closure where there is the desire to have a living legacy of site history.

There was discussion about the former Ad Hoc Committee on Recycled Metals and an EH report that Mr. Kucera spoke about at the end of the meeting the previous day. (Mr. Swindle noted the Ad Hoc Committee was formed to look at recycled metals but the DOE report it was going to review did not materialize so the Committee never met.) There did not appear to be any connection between the purpose of that Ad Hoc Committee and the subject of findings in the report. Mr. Kucera said he obtained a copy of the report, which is in nine volumes. He is looking through it and will work with Mr. Winston and the LTS

committee if there are additional sites to be considered by the DOE for LTS.

Dr. Berkey opened discussion on the potential of DOE renegotiating compliance agreements. He said that there is an opportunity to be proactive during the top-to-bottom review of the EM program that will be underway and tabled for discussion whether or not there is a more proactive role the EMAB should be take in light of the program review. Dr. Bodde noted that his earlier suggestion to maintain discussion with EMAB chairpersons as things move forward was meant to address EMAB's responsibilities on the fluidity of such issues and activities. Mr. Winston agreed with Dr. Berkey that perhaps there is a responsibility to be involved and suggested that the Board monitor the review discussions.

Mr. Martin added he expects compliance issues will surface as a result of the FY '02 budget.

Dr. Bodde stated that the process for submittal of new ideas to the Board should first be to notify the Executive Director. Mr. Melillo stated that he will monitor the developments of the top-to-bottom review and will keep the Board informed. Mayor Church stated that EMAB members should keep in mind that the Energy Community Alliance will meet in Oak Ridge October 17-19, 2001 when planning for the next EMAB meeting.

Dr. Bodde complimented the Committees and the EMAB staff for all the good work.

Third Public Comment Session

Dr. Bodde asked if there were any public comments. There were none.

The meeting adjourned at 12:00 p.m.

Approval: April 17-18, 2001 EMAB Meeting Minutes

(Original Signed) *(Original Signed)*

Dr. David Bodde Mr. Joel Bennett

Co-Chair Co-Chair

Environmental Management Advisory Board Environmental Management Advisory Board

(*Original Signed*)

Mr. James T. Melillo

Executive Director and Designated Federal Official

Environmental Management Advisory Board

Appendix A: April 17-18, 2001 EMAB Meeting Agenda

ENVIRONMENTAL MANAGEMENT ADVISORY BOARD
U.S. Department of Energy
Forrestal Building, Room 1E-245
April 17th - 18 th

Tuesday, April 17, 2001

1:00 p.m.	Public Meeting Opens • Welcome • Approve Minutes of October 12 - 13, 2000 Meeting	*David Bodde, EMAB Co-Chair* *Joel Bennett, EMAB Co-Chair*
1:15 p.m.	Opening Remarks	*Dr. Carolyn Huntoon Assistant Secretary, EM*
1:30 p.m.	Ad Hoc Committee on Science & Innovation Status Report/Briefing/Resolution	*John Ahearne, Chair*
2:15 p.m.	Technology Development & Transfer Committee • Briefing/Resolution	*Ed Berkey, Chair*
2:45 p.m.	Science Committee • Report/Briefing/Resolution	*Frank Parker, Chair*
3:00 p.m.	Break	
3:20 p.m.	Long-term Stewardship Committee • Briefing	*John Applegate, Co-Chair* *Tom Winston Co-Chair*
3:40 p.m.	Ad Hoc Committee on Safety and Technology • Briefings	*John Moran, Chair* *J. "Mac" Lankford, EM-53* *Bob Goldsmith, EM-5*
4:10 p.m.	Contracting & Management Committee • Briefing	*Dave Swindle, Chair*
4:40 p.m.	Ad Hoc Committee on Performance Measures and Leading Indicators • Briefing	*John Moran, Co-Chair* *Dave Swindle, Co-Chair*
5:00 p.m.	Alternative Technologies to Incineration Committee • Briefing	*Dick Begley, Co-Chair*
5:15	Public Comment Period and Adjournment	*David Bodde, EMAB*

p.m.		*Co-Chair* *Joel Bennett, EMAB Co-Chair*

Wednesday, April 18, 2001

8:30 a.m.	Opening Remarks	*David Bodde, EMAB Co-Chair* *Joel Bennett, EMAB Co-Chair*
8:35 a.m.	FY 2002 Budget Overview • Briefing	*Gene Schmitt, EM-10*
9:05 a.m.	EM Disposition Mapping • Briefing	*Dr. Linda McCoy, DOE-Idaho* *Dr. Paul Kearns, INEEL*
10:05 a.m.	Public Comment Period	*David Bodde, EMAB Co-Chair* *Joel Bennett, EMAB Co-Chair*
10:20 a.m.	Break	
10:35 a.m.	Board Business • Board Discussion -FY 2001 Board and Committee Work Plan Development - Briefing • Approval of Resolutions • New Business • Board Calendar	*David Bodde, EMAB Co-Chair* *Joel Bennett, EMAB Co-Chair*
12:05 p.m.	Public Comment Period	*David Bodde, EMAB Co-Chair* *Joel Bennett, EMAB Co-Chair*
12:15 p.m.	Adjournment	

Appendix B, Alternative Technologies to Incineration Committee Draft Charter

Charter
Environmental Management Advisory Board's
Alternative Technologies to Incineration Committee (ATIC)

Background

The Secretary of Energy Advisory Board's Panel on Emerging Technological Alternatives to Incineration submitted a final report in December 2000. The Panel was chartered to evaluate and recommend technology initiatives the Department should pursue at Idaho as an alternative to incinerating mixed, transuranic (TRU) and low-level wastes. The Panel identified a range of "promising technologies" for further evaluation and suggested changes to DOE's developing Research, Development, Demonstration, and Deployment (RDD&D) plan for selecting alternative technologies.

Among other recommendations, the Panel recognized "...the need to develop and maintain full and meaningful public involvement throughout the RDD&D process, particularly in the evaluation and implementation of any technology for the Department's Idaho National Engineering and Environmental Laboratory (INEEL) TRU and mixed waste" (p. 22).

On January 8th, 2001, Secretary Richardson announced that as part of the Department's process to further evaluate and select alternative technologies to incineration and implement the evolving RDD&D plan, he would broaden opportunities for public involvement, including creation of a citizens' working group to monitor progress and provide direct input into the Department's technology-development efforts. Subsequently, it was determined that this citizens' working group would be organized as a Committee under the existing Environmental Management Advisory Board (EMAB), a Federal Advisory Committee Act (FACA) entity, external to and independent of the Department, which advises the Assistant Secretary for Environmental Management on issues relating to the treatment and remediation of cold war "legacy" nuclear waste.

Mission

The ATIC will examine emerging candidate technologies identified by the Department for treatment and disposal of mixed TRU and low-level wastes previously scheduled for incineration at INEEL. The Department is identifying these technologies through implementation of its technology RDD&D plan. The ATIC will facilitate stakeholder comment and communications on issues related to emerging alternative technologies to incineration for the treatment of mixed TRU and low-level wastes.

Reporting

The ATIC will report to the Environmental Management Advisory Board. The members of the Environmental Management Advisory Board, after discussion in an open meeting, will formulate advice and recommendations for transmittal to the Assistant Secretary for Environmental Management (EM-1). Transcripts and minutes of EMAB meetings will be made available to the public through direct and electronic mail as requested, postings on the EMAB web site (**http://www.em.doe.gov/emab/**), and in DOE reading rooms. (The EMAB normally meets semi-annually. In accordance with FACA guidelines, all meetings of the EMAB are announced in the *Federal Register* approximately 30 days prior to a scheduled meeting.)

Estimated Number and Frequency of Meetings

The ATIC will meet 2-4 times annually as prescribed by the Committee Co-Chairs. ATIC meetings will be scheduled by the Committee Co-Chairs and will be announced in the EMAB Bi-Monthly Report available on the EMAB web-site (**http://www.em.doe.gov/emab/**).

Minutes of ATIC meetings also will be posted on the EMAB web site and will be made available to the public through direct and electronic mail as requested.

Membership Appointment Process

The ATIC will be composed of not more than sixteen (16) members. The Assistant Secretary for Environmental Management will appoint:

- The Committee Co-Chairs.
- Two representatives from public policy organizations that were parties to a Settlement Agreement resolving issues related to the treatment of waste at the Department=s Idaho National Engineering and Environmental Laboratory (INEEL).
- One representative nominated by the Governor of Idaho and one representative nominated by the Governor of Wyoming.
- Ten representatives selected from candidates nominated by organizations and individuals based on announced selection criteria.

A selection panel composed of the EMAB Co-Chairs, the ATIC Chair or Co-chairs, and the EMAB Executive Director will evaluate the nominations and submit membership recommendations based on announced criteria. The Assistant Secretary for Environmental Management will make the final selection from those candidates recommended by the selection panel.

Terms of Appointment

Members will be appointed for an initial term of one year.

The Assistant Secretary for Environmental Management may reappoint members to additional one-year terms. The Assistant Secretary for Environmental Management may fill vacancies on the ATIC based on recommendations made by the candidate selection panel.

Termination of the Committee

The Committee's Charter will be reviewed annually by the EMAB Co-Chairs and the EMAB Executive Director. Decisions to extend or terminate the Committee's existence will be discussed at public meetings but shall be subject to the approval of the Assistant Secretary for Environmental Management. The Committee may recommend its own dissolution to the EMAB Co-Chairs and the Assistant Secretary for Environmental Management.

Appendix C, Resolution: The Role and Status of Basic Science in Accomplishing the DOE-EM Mission

RESOLUTION ON
The Role and Status of Basic Science in Accomplishing the DOE-EM Mission

Whereas, the Environmental Management Advisory Board created and charged an Ad Hoc Committee on Science and Innovation to "explore the role of Science within the context of the Environmental Management (EM) program, and the broader Department of Energy (DOE) issues pertaining to funding for the scientific research that impact the EM program;**"**

Whereas, the Committee focused primarily on the Environmental Management Science Program (EMSP) in answering this charge because the opportunities for paradigm-shifting break-throughs to reduce/avoid environmental and occupational risks, and/or cleanup costs/schedules in non-EMSP science and technology activities are necessarily limited;

And, whereas, the Committee in its investigations concluded that:

- EMSP has reached out and harnessed some of the best scientists in the United States to work on solving the technical challenges to effectively and safely clean-up the environmental contamination legacy of the nation's nuclear weapons program;

- the EMSP process has also turned out to be an effective means of maintaining the core competency of research organizations associated with EM drawing its participants into an intellectually integrated community, extending across the DOE complex and academia;

- the EMSP has achieved many of the expectations of those who conceived it and has achieved much closer interaction with the Office of Science and Technology (OST) Focus Areas over its five years of existence;

- the application of science results requires the attention of all branches of EM.

Now, therefore, be it resolved since the entire EM-related science research enterprise must flow from a shared and compelling strategic view of program objectives and benefits by DOE leadership to emphasize proactively the priority, value, and role of science in solving major EM problems, **The Environmental Management Advisory Board recommends that:**

- The Assistant Secretary for EM and the Director for the Office of Science (SC) should provide top-down demonstrable support for their science programs. They should champion proactively such programs with other key decision-makers in the Department of Energy, as well as in Congress and the Office of Management and Budget.

- The Assistant Secretary for EM should ensure that all EM Deputy Assistant Secretaries become proactive in ensuring the science developed in OST gets applied in EM.

- The Assistant Secretary for EM and the Director for SC should convene a working group to develop a strategic plan for an EM science program that will articulate both internally and externally:

  - why investments in basic science are important,
  - what an EM science program is expected to accomplish,
  - what incentives can be developed so that these expectations can be met, and
  - how promising bench-scale research can be transferred to field-scale tests/application.

- The leadership of DOE and the Assistant Secretary for EM should request adequate, stable and predictable funding and should not depend on Congress to initiate budgetary increases.

  - The National Research Council, in a 1997 report, calculated that an adequate EMSP budget that would support an adequate number of new and continuing projects, and would attract and retain outstanding scientific talent, should be $112 million per year.

- The leadership of DOE and the Assistant Secretary for EM should seek additional funds to bridge the Avalley of death@ (i.e., the process by which the most promising projects are carried from bench-scale research to field-scale testing and implementation).

- The Deputy Assistant Secretary for OST should establish requirements for DOE employee positions in the EMSP that reflect their scientific and technical nature and should refine operational procedures for the EMSP.

  - EMSP staff must be capable of identifying promising research findings and making such findings known to key decision-makers and end-users. Position requirements should include responsibility and accountability for validating science needs, acting as liaison between end-users and researchers, and identifying and distilling science results.
  - EMSP operational procedures should ensure that Focus Area personnel and other site users are involved, not only in the development of calls for proposals, but as advisors in the merit review of such proposals.

- The Deputy Assistant Secretary for OST should require that flexible roadmaps be developed which identify the paths to be pursued to clean-up while accommodating credible alternative clean-up technology options that may become available (particularly in high-risk situations).
- The Assistant Secretary for EM should mandate that EMSP grants be clearly differentiated between Acore science@ and Aproblem-driven science,@ particularly with regard to the criteria by which each is judged to be successful. The criteria should recognize clearly that EMSP is most likely to contribute to intermediate or long-term clean-up processes, into which the incorporation of new technology is most practicable.

- *Once the Program is stabilized with significantly higher funding,* the Deputy Assistant Secretary for OST should begin the process of broadening its research approach beyond the current grant model. A portion of DOE grants then should then support teams of investigators working together directly with end-users. Grants should be awarded competitively to university or national laboratory investigators who lead multi-organizational teams in developing and applying research to identified problem areas.

Appendix D, Resolution: Status Review of the OST Program

RESOLUTION ON
The Status Review of the Office of Science and Technology (OST) Program

Whereas, since 1995, the Environmental Management Advisory Board's (EMAB) Technology Development & Transfer (TD&T) Committee has reviewed many elements of the Office of Environmental Management's (EM) Office of Science and Technology (OST) program, but has not conducted a high-level systems review of the whole program;

Whereas, The Assistant Secretary for Environmental management (EM-1) asked the EMAB TD&T Committee to conduct a review of the systems and processes of the OST program;

Whereas, the TD&T Committee formed a Working Group from its members to consider three questions provided by EM-1:

- How does the EM Science and Technology (S&T) program compare to similar environmental technology research and development programs in the Federal Government and private industry?
- How have OST investments impacted the DOE's cleanup mission?
- Are the current structure and operations of OST's program adequate to continue the trend of increased use of S&T in meeting DOE's cleanup goals?;

Whereas, the EMAB TD&T Working Group met with and collected information from OST management at DOE Headquarters, as well as from DOE Federal employees and contractors at the Savannah River Site (SRS) and the Idaho National Engineering and Environmental Laboratory (INEEL).

Now, therefore, be it resolved, that **The Environmental Management Advisory Board** recommends:

- DOE-EM should implement a complex-wide, consistent, and well thought out communication plan related to the S&T Program that can describe progress, status, and plans to keep Congress and the sites informed, as well as to demonstrate the increasing use and value of S&T.

- DOE-EM should expand the use of contract incentives to encourage the solution of problems through the use of new technologies.

- DOE-EM should make greater use of complex-wide integration and disposition tools to identify technology needs and waste integration opportunities and assist the allocation of resources.

- OST must improve the quality of technology-related data being reported from the Field, as it is critical to the prioritization process for allocating funds, as well as to EM's credibility.

- OST should define and use a rational and defensible life cycle cost-savings reporting system, including cost avoidance.

- OST should develop and implement more ways to measure progress, preferably a suite of corporate performance measures that promote intended outcomes.

- OST should make greater use of the EM Lead Laboratory and the core laboratories to fill gaps where the Focus Areas are not operating, such as longer-range strategic issues.

- OST should continue to pursue the path of continuous improvement as a corporate organization that it has been following.

Appendix E, Resolution: The Quality of Science Stemming from the EMSP

RESOLUTION ON
The Quality of Science Stemming from the EMSP

Whereas, the Office of Environmental Management charged the Environmental Management Advisory Board Science Committee to review the quality of science stemming from research funded by the Department of Energy (DOE) Environmental Management Science Program (EMSP);

Whereas, at the request of the Office of Basic and Applied Research, the Committee initiated its review focusing on grants funded in the High-Level Waste and the Decontamination &

Decommissioning EM focus areas, which had submitted a Project Final Report;

Whereas, the Committee reviewed a small and statistically insignificant sample of EMSP projects and reviewed each project's Final Report for:

- intellectual merit of the research activity,
- originality of the project,
- importance of the project in advancing knowledge and understanding, and
- whether the project increases number of potential researchers to DOE problems.
- whether the project increases the number of potential researchers to DOE problems.

And, whereas, the Committee is encouraged with the integration of science and technology into EM's line programs (e.g., offices of Integration and Disposition, Site Closure, and Project Completion) and believes that because of the diversity of each program's approach to its problems, their responsibility for promoting and implementing new science and technology and making their staff and contractors aware of the results of EMSP projects is manifested in different ways.

Now, therefore, be it resolved that **the Environmental Management Advisory Board** recommends:

- The Deputy Assistant Secretary for the Office of Science and Technology should explore stronger interim quality assurance measures for EMSP projects to leverage better final reports and to get them on time (i.e., final reports are due three months following grant completion, or fifteen months when a no-cost extension is granted; however, many projects are well beyond the fifteen month point and have not submitted a final report).

- The Deputy Assistant Secretary for the Office of Science and Technology should ensure that EMSP principal investigators document in project final reports the importance of the basic science research results stemming from the project and their potential methods for utilization.

- The Deputy Assistant Secretary for the Office of Science and Technology should ensure that EMSP reports are easily available and disseminated *in a form* that will be readily utilized by DOE and contractor managers.